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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/589,573	06/07/2000	Michael C. Lewis	945P/BP1413	1314

7590

05/28/2002

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EXAMINER

NGUYEN, KIMBINH T

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 05/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/589,573

Applicant(s)

LEWIS, MICHAEL C.

Examiner

Kimbinh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to amendment filed on 9/28/01.
2. Claims 1-8 and 10-15 are pending in the application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins et al. (4,918,626) in view of Foran et al. (5,684,939).

Claim 1, Watkins et al. discloses a) determining if a portion of at least one object intersects a current position of the plurality of positions and providing an output if the portion intersects the current position (col. 4, lines 11-19); b) providing a mask for the position if the position intersects the current position, the mask indicating an extent to one portion occupies the area of the current position (col. 9, lines 16-26); Watkins does not suggest coverage mask; however, Foran et al. discloses using the mask to provide antialiasing for the portion at the current position (col. 15, line 52 through col. 16, line 15); repeating steps (a) -(c) for each remaining object at the current position; d) repeating steps a) - e) for remaining position of the plurality of positions at step (d) is performed for the current position; thereby allowing the graphical image to be rendered

position by position. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the Foran's teaching into the Watkins' method, because it would improve a region mask based on the supersample coverage mask indicating an extent of polygon coverage within each pixel when the antialiased display data is displayed.

Claim 2, Watkins discloses using at least one mask to blend information relating to at least one portion of the subareas (col. 9, lines 56-65).

Claim 4, Watkins discloses each of the plurality of positions is a pixel and wherein the current position is a current pixel on the display (col. 4, lines 15-30).

5. Claims 3, 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins et al. (4,918,626) in view of Foran et al. (5,684,939) and further in view of Kuchkuda et al. (5,872,902).

Claim 3, Kuchkuda et al. discloses summing the information of subareas to provide a resultant; dividing the resultant by the number of subareas (col. 5, lines 11-18). It would have been obvious to one of ordinary skill in the art to include this feature, because it could improve a method for rendering of fractional pixels for anti-aliasing and pixel blending technique by calculating pixels of complex coverage areas.

Claim 5, Kuchkuda et al. discloses f) removing the portion if the portion is obstructed (col. 16, line 52). It would have been obvious to one of ordinary skill in the art to include this feature, because removing a hidden surface that could improve rendering visual images for anti-aliasing.

Claim 6, Kuchkuda et al discloses g) sorting each portion based on the z-value (col. 18, lines 2-5). It would have been obvious to one of ordinary skill in the art to include this feature, because applying z sorting that could improve rendering visual images for anti-aliasing and pixel blending technique.

Claims 7 and 8, Watkins discloses repeating steps a) through c) (col. 2, lines 16-19) and Kuchkuda discloses steps f) through g) for each object (col. 16, lines 50-53) and for the positions.

It would have been obvious to one of ordinary skill in the art to include this feature, because rendering pipeline that would improve blending and antialiasing rendering algorithms used in the system.

6. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins et al. (4,918,626) in view of Foran et al. (5,684,939) and Eckart (5,408,606).

Claim 10, Watkins discloses display a plurality of positions, the position having an area (col. 4, lines 15-46); Foran discloses a processor coupled with the display, an interpolator coupled with the processor (figs. 4a, 4b); further, Eckart discloses objects are rendered by the interpolator and the mask position by position in raster order (col. 8, lines 8-20; col. 9, lines 20-23); the processor provides the output for objects intersecting the current position before providing an output for objects intersecting a subsequent position. It would have been obvious to one of ordinary skill in the art to incorporate the Eckart's teaching into Watkins and Foran's teachings to display and output data in a raster order, because using raster scan order, it would improve in processing graphics data, the system would render faster.

Claim 11, the rationale provided in the rejection of claim 2 is applicable hereto

Claim 12, the rationale provided in the rejection of claim 3 is applicable hereto.

Claim 13, Watkins discloses each of the plurality of positions is a pixel and wherein the current position is a current pixel on the display (col. 4, lines 15-30).

Claim 14, the rationale provided in the rejection of claim 6 is applicable hereto.

Claim 15, Foran discloses a removal unit coupled with the processor and interpolator (fig. 4b), in response to the output and without determining a precise axial position of the portion, the obstructed object identifies the portion is visually obstructed and removes the portion is obstructed (col. 9, lines 1-10); and Kuchkuda discloses sorting the portion based on the z value (col. 18, lines 2-5). It would have been obvious to one of ordinary skill in the art to include this feature, because applying hidden surface removal and z sorting based on z value that could improve anti-aliasing method.

Response to Arguments

7. Applicant's arguments filed 4/1/02 have been fully considered but they are not persuasive.

With respect to Applicant's Arguments, In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., renders the objects pixel by pixel) are not recited in the rejected claims 1 and 10. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993); the recitation "rendered in raster order" are not recited in claim 1.

Applicant states that Watkins in view of Foran do not disclose a method and system in which the objects are rendered pixel by pixel; the examiner disagrees, because both Watkins and Foran suggest improving antialiased imaging with improved pixel supersampling using mask and raster to perform antialiasing, rendering objects pixel by pixel (Watkins, col. 8, lines 36; Foran; col. 5, line 16); in general, the system

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resolves priority between contending polygons at specific locations, e.g. pixels or sub-pixels, Watkins teaches determining intersection edge 18 between two polygons and a pixel 36a lying on the edge 18. Thus, it is apparent that the resolution between of pixel-by-pixel or sub-pixel by sub-pixel polygon priority between polygons contending for individual areas in a display, e.g. pixels, the system as disclosed filters the pixel data to eliminate hidden surfaces and accomplishing antialiasing. Foran discusses using coverage mask indicating an extent of polygon coverage within each polygon covered pixel. The image system also includes a raster system having at least one image processor for receiving pixel data for each pixel; Foran also discusses rendering objects pixel by pixel (col. 5, lines 16-23). Therefore, the combination of Foran in view of Watkins must render the scene pixel by pixel. Claim 10, the teaching of Eckart shows performing visibility and blending operations on predetermined sequences of update pixels to provide display data in raster order by numerical sequence from 0 to 8 (col. 8, lines 7-20). Therefore, the combinations of Watkins, Foran, Eckart and Kuchkuda show limitations of claims 1-8, 9-15, and the rejection is maintained.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kimbinh Nguyen** whose telephone number is **(703) 305-9683**. The examiner can normally be reached **(Monday- Thursday from 7:00 AM to 4:30 PM and alternate Fridays from 7:00 AM to 3:30 PM)**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

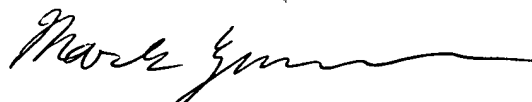
(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Part II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Kimbinh Nguyen

May 22, 2002


MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600